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Did the savannah « flourished » 3000 years ago in the so-called Sangha River Interval of the Guineo-Congolian rainforest ? A retrospective study using stable isotopes and phytoliths.

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We aim to improve our knowledge of the dynamic of the vegetation in Central Africa during the last 5 kyrs and to discuss the main hypothesis described in the literature - humans versus climatic impacts- both suggested as responsible of the Congo basin rainforest decline observed between 3 and 2.5 kyrs. We use the carbon isotopic composition of well-dated Central African soils to reconstruct the dynamic of the vegetation cover. We will discuss the carbon isotopic composition of the soil organic carbon methodology for reconstructing palaeovegetation in the light of Rayleigh distillation model. We showed that numerous sites exhibit a carbon isotopic ratios reflecting the Rayleigh distillation but few sites recorded real vegetation changes. Our study suggests that the vegetation of the Guineo-Congolian Region was disturbed between 3000 and 2000 BP (Before Present) without an extreme savannah expansion. We discussed the two hypotheses human versus climate impacts that may conduct to such new physiography of the vegetation. We suggest that the climate hypothesis is more likely than the human impact to explain the reduction of the Guineo-Congolian rainforest 3000 years ago.